

REMARKS/ARGUMENTS

Favorable reconsideration of this application, as presently amended and in light of the following remarks, is respectfully requested.

Claims 1-43 are pending; and Claims 1, 3, 10-14, 19, 22, 25, and 26 are amended.

Support for changes to the claims is found at least in Applicant's specification at paragraphs [0080] and [0081]. Thus, the changes to the claims add no new matter.

The outstanding Official Action rejected Claims 1-43 under 35 U.S.C. § 103(a) as unpatentable over U.S. Patent Application Publication No. 2004/0233855 to Gutierrez et al. (hereinafter "Gutierrez") and U.S. Patent Application Publication No. 2004/0029533 to Cain.

The Advisory Action of June 1, 2010 sustained these rejections and withdrew the rejections of Claims 11, 42, and 43 under 35 U.S.C. § 101. Applicant acknowledges with appreciation the withdrawal of the rejection of Claims 11, 42, and 43 under 35 U.S.C. § 101.

Claim 1 is directed to a communications system comprising a plurality of communication terminals including a first communication terminal to broadcast a route request message to a third communication terminal via a second communication terminal. Claim 1 is amended to recite, *inter alia*, "route creation means for creating a plurality of the routes to the first communication terminal by, upon reception of the route request message and determination that the route request message was not previously received, broadcasting the route request message to each terminal included in the plurality of terminals to duplicatively receive the message."

Now turning to the applied reference, Gutierrez describes an ad-hoc network topology including network controls and network devices.¹ Gutierrez describes that upon initialization, the network devices engage in a neighbor discovery process in which the best

¹ See Gutierrez at paragraph [0023].

multi-hop neighbor is discovered.² In this regard, Gutierrez describes that the network controller knows the entire road map of the ad hoc network, while each of the network devices only knows enough to ask its best neighbor to pass the information along to its best neighbor, and so on, until the ultimate destination is reached.³

However, Gutierrez fails to disclose or suggest that the neighbor discovery process of Gutierrez includes “route creation means for creating a plurality of the routes to the first communication terminal by, upon reception of the route request message and determination that the route request message was not previously received, broadcasting the route request message to each terminal included in the plurality of terminals to duplicatively receive the message,” as recited in amended Claim 1.

Now turning to Cain, the applied reference describes a system for distributing duplicate message data along a plurality of discovered routes.⁴ Figure 1 of Cain illustrates an ad-hoc network 20 that includes a plurality of mobile nodes 30 including a source node 1, a destination node 4, and intermediate nodes 2, 3, and 5.⁵ Cain describes that when a new route is needed to a given destination node 4, the source node 1 broadcasts a route request RREQ packet to the destination node, where each intermediate node 2, 3, and 5 determines whether the node can support the route request RREQ, and appropriately forwards the request RREQ to the destination node 4.⁶

Cain also describes that the destination node 4, upon receiving the route request RREQ, generates a reply RREP to the source node 1 for each discovered route such as routes 1-2-4 or 1-3-5-4.⁷ As illustrated in Figure 5 of Cain, once the routes have been discovered,

² See Gutierrez at paragraph [0023].

³ See Gutierrez at paragraph [0023].

⁴ See Cain at para. [0014].

⁵ See Cain at para. [0027] and Fig. 1.

⁶ See Cain at paras. [0027] and [0028].

⁷ See Cain at para. [0029].

the source node 1 distributes the message data to the destination node 4 along the plurality of discovered routes, such as routes 1-2-4 and 1-3-5-4.⁸

Cain is distinguishable over amended Claim 1 as the applied reference fails to disclose or suggest “route creation means for creating a plurality of the routes to the first communication terminal by, upon reception of the route request message and determination that the route request message was not previously received, broadcasting the route request message to each terminal included in the plurality of terminals to duplicatively receive the message.” While Cain describes broadcasting a RREQ packet from the source node 1 to the destination node 4 via the intermediate nodes 2, 3, and 5, Cain fails to disclose or suggest that upon reception of the RREQ packet and determination that the RREQ packet was not previously received, the RREQ packet is broadcasted to each node in communication with with source node 1.

Further, as illustrated above, the routes of Cain are discovered *prior* to distributing the duplicative message data over the discovered routes of Cain. That is, the plurality of routes in Cain are *not discovered by distributing the duplicative message data* of Cain.

Accordingly, Cain fails to disclose or suggest “route creation means for creating a plurality of the routes to the first communication terminal by, upon reception of the route request message and determination that the route request message was not previously received, broadcasting the route request message to each terminal included in the plurality of terminals to duplicatively receive the message,” as recited in amended Claim 1.

Applicant submits that Cain and Gutierrez fail to disclose or suggest all the features of Claim 1 as amended. Accordingly, Applicant respectfully requests that the rejection of Claim 1, and claims depending therefrom, under 35 U.S.C. § 103(a) be withdrawn.

⁸ See Cain at para. [0032] and Fig. 5.

As independent Claims 3, 10-14, 19, 22, 25, and 26 are amended to recite features analogous to Claim 1, Applicant submits that Gutierrez and Cain fail to disclose or suggest all of the features of these independent claims. Accordingly, Applicant respectfully requests that the rejection of amended independent Claims 3, 10-14, 19, 22, 25, and 26, and claims depending therefrom, under 35 U.S.C. § 103(a) be withdrawn.

Applicant respectfully traverses the rejection of Claims 27-43 under 35 U.S.C. § 103(a).

The Advisory Action of June 1, 2010 did not address Applicant's arguments regarding the rejection of Claims 27-43 under 35 U.S.C. § 103(a) over Gutierrez and Cain. Applicant submits that Claims 27-43 are patentably distinguishable over Gutierrez and Cain. Accordingly, Applicant's arguments regarding Claims 27-43 presented in the amendment filed on May 13, 2010 are reiterated below.

Claim 27 is directed to a communication system including a plurality of communication terminals, and based on a message originated from a first communication terminal to a third communication terminal via a second communication terminal, creates routes to the first communication terminal by using the second and third communication terminals to communicate between the first and third communication terminals via the created route. Claim 27 recites, *inter alia*, that "the second communication terminal has state notification means for detecting a possible disconnection state in terms of a disconnection symptom for communication on the route as an upstream side for the message and notifying the possible disconnection state to the first communication terminal."

Now turning to the applied reference, Figure 5 of Gutierrez illustrates an example typology of an ad-hoc communication network 23, which includes a single network

coordinator (NC) 24 and network devices (ND) 1-11.⁹ Gutierrez describes the following upstream and downstream transfer types:

Referring to FIG. 5, on every message transfer, each message, such as 32, contains a field 34 that allows the ND 14 to recognize the two types of transfer: ***(1) upstream transfer 36 (i.e., from the particular ND 14 to the NC 24); or (2) downstream transfer 38 (i.e., from the NC 24 to the particular ND 14).***¹⁰ (Emphasis added).

Particularly, as described above, an upstream transfer occurs when a message is transferred from any particular ND14 to the NC 24, and a downstream transfer occurs when a message is transferred from the NC 24 to any particular ND 14. Gutierrez further describes that in an upstream transfer mode, a source route is created between the ND 14 and the NC 24.¹¹ Gutierrez further describes that in the downstream transfer mode, since the NC 24 knows at least one route to each ND 14, the NC 24 may select the optimum way to transfer data to a final ND 14.¹²

If a particular network device is unable to relay a message, Gutierrez describes the following process for sending a route error message:

If one of the NDs 14 (e.g., ND7) is not able to relay a message for any reason (e.g., link down; routing table 30 exhausted), ***the ND 14 sends back a special "Route Error" message 58, which informs the preceding ND 14 (e.g., ND9) (or the NC 24) that the routing operation failed.*** In this instance, the routing method is complementary relative to the message source ***(e.g., if a message employing "downstream transfer" causes an error, then the Route Error message is sent back via the "upstream transfer" mode).*** The failure of one ND 14 to acknowledge a "Route Error" message causes the relaying node to discard the packet. A node that could not relay a "Route Error" message does not send back another "Route Error" message, since that would create a loop condition.¹³ (Emphasis added).

⁹ See Gutierrez at paras. [0045], [0046], and [0064], [0078], and Fig. 3.

¹⁰ See Gutierrez at para. [0078].

¹¹ See Gutierrez at para. [0079].

¹² See Gutierrez at para. [0081].

¹³ See Gutierrez at para. [0083].

Claim 27 is distinguishable over Gutierrez as the applied reference fails to disclose or suggest “notification means for detecting a possible disconnection state in terms of a disconnection symptom for *communication on the route as an upstream side for the message.*” (Emphasis added). The outstanding Official Action identifies the route error message of Gutierrez as the claimed “notification means.”¹⁴ However, as illustrated above, Gutierrez merely describes that the route error message is employed in a downstream transfer mode rather than an upstream transfer mode.¹⁵ Gutierrez neither discloses nor suggests that the network illustrated in Figure 5 of Gutierrez is configured to send a route error message when a message is transferred using the upstream transfer mode. Particularly, as discussed above, Gutierrez merely describes that the upstream transfer mode is used to create a source route.¹⁶ Therefore, since the upstream transfer mode is used to create a source route, there is no need in Gutierrez to generate a route error message in the upstream transfer mode because there is no created source route.

Applicant has considered Cain, and submits that Cain fails to cure the deficiencies of Gutierrez. Accordingly, Applicant submits that Gutierrez and Cain fail to disclose or suggest all the features of Claim 27. Applicant respectfully requests that the rejection of Claim 27, and claims depending therefrom, under 35 U.S.C. § 103(a) be withdrawn.

As independent Claims 33, 36, 37, and 41-43 recite features analogous to Claim 27, Applicant submits that Gutierrez and Cain fail to disclose or suggest all the features of these independent claims. Accordingly, Applicant respectfully requests that the rejection of independent Claims 33, 36, 37, and 41-43, and claims depending therefrom, under 35 U.S.C. § 103(a) be withdrawn.

¹⁴ See Official Action of March 31, 2010 at page 19.

¹⁵ See Gutierrez at para. [0083].


¹⁶ See Gutierrez at para. [0079].

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and the Advisory Action of June 1, 2010

Consequently, in view of the above amendments and present remarks, no further issues are believed to be outstanding, and the present application is believed to be in condition for formal allowance. A Notice of Allowance is earnestly solicited.

Respectfully submitted,

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